Arrival of New Paradigm in TV Industry

2016 November - Korea Display Conference

Ken Park, Principal Analyst of TV Sets Research, IHS Markit Technology
Agenda

• New TV Paradigm Shift
  > Look the TV or Look through TV?
• TV Brands Strategy
  > New Comer (Go big or Go home?)
  > Hybrid (Fast Follower)
  > Traditional Brands (Power of Brand and Technology)
• Premium TV Market Forecast
  > LCD TV 4K
  > OLED TV
  > 65”+ 4K HDR WCG
New TV Paradigm

Look the TV or Look through TV?
2016 has another decline in revenue after big drop down 7.4% in 2015, with long stagnation until 2020
Worldwide TV household penetrations have reached almost 80% in 2015 with Net Additions falling rapidly.
Premium TV defined by price point top 5% of ASP is pressured by fast price falling of 65” 4K below $1000
32” TV is just a commodity to give a way for promotion or a package product of 24 units at $2,856 for B2C consumers from Sam’s Club.
In order to boost up TV demand again, new product life cycle must emerge disruptively from current product cycle by technology or by content.
To break current paradigm, Innovative technology, disruptive business model, and divergent value chain should revolutionize the TV industry.
Smartphone is a good example to learn how mobile industry has grown from traditional phone market

The Paradigm Shift tends to occur from the effort changing the key content of end-user, so innovation must arise in entire industry ecosystem by breaking the traditional boundaries. Apple is a good example of entering the mobile industry, fetching a paradigm shift.
What about TV industry? Let’s turn our views from specific TV display industry to whole TV industry.

<table>
<thead>
<tr>
<th>Content</th>
<th>Network</th>
<th>Distribution</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>News</td>
<td></td>
<td></td>
<td>#1 Paradigm Shift</td>
</tr>
<tr>
<td>Sports</td>
<td>#2 Paradigm Shift</td>
<td>Free To Air</td>
<td>CRT → LCD</td>
</tr>
<tr>
<td>Entertainment</td>
<td>Analog → Digital</td>
<td>Cable/Satellite/Telco/IP</td>
<td>HD</td>
</tr>
<tr>
<td>Live</td>
<td></td>
<td></td>
<td>LED backlight</td>
</tr>
<tr>
<td>Time Shifted</td>
<td></td>
<td></td>
<td>3D</td>
</tr>
<tr>
<td>Drama</td>
<td></td>
<td></td>
<td>Smart</td>
</tr>
<tr>
<td>Soaps</td>
<td></td>
<td></td>
<td>4K</td>
</tr>
<tr>
<td>Documentary/Life/Children</td>
<td>3D</td>
<td></td>
<td>HDR 8K</td>
</tr>
<tr>
<td>Movies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comedy</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#2 Paradigm Shift: Analog → Digital

#3 Paradigm Shift: On-line Streaming Disruptive

#4 Paradigm Shift
Netflix, as a content creator, increases original contents as well as video subscriptions every year.

**ORIGINAL CONTENT UP 3,050% IN 4 YEARS**

Yep, there were just a quartet of shows in 2012, and now Netflix has more than any one network or cable channel in existence.

Source: THR research; *projected numbers

---

**Diagram:**

- **2012:** 4 (Scripted Series), 1 (Unscripted Series/Special), 1 (Documentary Film), 2 (Kids Series), 1 (Foreign-Language Series), 0 (Film)
- **2013:** 13 (Scripted Series), 5 (Unscripted Series/Special), 7 (Documentary Film), 6 (Kids Series), 1 (Foreign-Language Series), 0 (Film)
- **2014:** 25 (Scripted Series), 19 (Unscripted Series/Special), 13 (Documentary Film), 7 (Kids Series), 3 (Foreign-Language Series), 2 (Film)
- **2015:** 59 (Scripted Series), 19 (Unscripted Series/Special), 13 (Documentary Film), 7 (Kids Series), 3 (Foreign-Language Series), 2 (Film)
- **2016:** 126 (Projected total)

Source: THR research

© 2016 IHS
Netflix, a content provider gradually gains a strong position controlling TV players, even involving in product development.

Source: pictures from Netflix website
Roku, a platform service provider works closely with traditional TV manufacturers in the US with more well-known brand image.

Source: pictures from Roku website

© 2016 IHS Markit. All Rights Reserved.
Amazon, a content aggregator succeeded in several devices distributing killer contents, but failed in the fire-phone due to a strong focus on hardware.

Source: pictures from Amazon website
Apple is ambitious to become an operator after a content aggregator and distributor through powerful combination of its AppleTV and AppStore.

Apple TV Gen.4th
- Live tune-in
- 6,000 apps
- HomeKit™ accessories

Single Sign-on

Source: pictures from Apple website
Merge & Acquisition is likely to occur in such paradigm shift as typical TV industry growth is stagnated and matured in traditional ways.

Source: IHS Markit Technology
TV Brand Strategy

New & Traditional Players
LeEco announced on July 26th the acquisition of Vizio for US$2 billion

Vizio TV Shipments History

LeEco TV Shipments History

Source: IHS Markit Technology

© 2016 IHS

Source: IHS

© 2016 IHS
Merge & Acquisition is likely to occur in such paradigm shift as typical TV industry growth is stagnated and matured in traditional ways.
By combining Vizio and LeTV shipments, LeEco jumped into top 7 brands at once in 2015 and will be likely to rank at top 4 in 2016

Source: IHS Markit Technology
TCL

Fast Follower

- One of only 3 TV brands in the world and the only one in China to be vertically integrated
- World’s largest generation 11 line
- Oxide semiconductor, Cu process
- POA, Super GOA tech
- QD OLED Printing tech
- 43”, 65”, 70”(21:9), 75” LCD displays
- Ultra-large public displays as well as OLED displays

Source: TCL media day at IFA2016
TCL appears to step up to its own technology roadmap by taking advantage of each technology from Samsung and LG.

- **TCL Roadmap:**
  - **Step 1:** LCD 
  - **Step 2:** QD LCD 
  - **Step 3:** OLED 
  - **Step 2:** QD OLED 

- **Samsung Roadmap:**
  - **Step 1:** LCD 
  - **Step 2:** QD LCD 
  - **Step 3:** OLED 
  - **Step 2:** QLED
New business model of “Buy hardware get content free” striving to discard the mindset of traditional TV manufacturers by strategic transformation in the internet era
Mid-tier brands strike back in 2017 with a license by OEM’s aggressive volume scale and cost efficiency.
# Top-tier brand’s high-end product competition

## Top premium line-up comparison

<table>
<thead>
<tr>
<th>Model</th>
<th>KS9800</th>
<th>G6</th>
<th>XBR-Z9D</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brand</strong></td>
<td>Samsung</td>
<td>LGE</td>
<td>Sony</td>
</tr>
<tr>
<td><strong>Display</strong></td>
<td>LCD</td>
<td>OLED</td>
<td>LCD</td>
</tr>
<tr>
<td><strong>Resolution</strong></td>
<td>4K</td>
<td>4K</td>
<td>4K</td>
</tr>
<tr>
<td><strong>Peak Brightness</strong></td>
<td>1000</td>
<td>750</td>
<td>2000</td>
</tr>
<tr>
<td><strong>Color Depth</strong></td>
<td>10bit</td>
<td>10bit</td>
<td>14bit</td>
</tr>
<tr>
<td><strong>Curved Design</strong></td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td><strong>Ultra Thin</strong></td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td><strong>HDR</strong></td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td><strong>OS</strong></td>
<td>Tizen</td>
<td>WebOS</td>
<td>Android</td>
</tr>
<tr>
<td>65”</td>
<td>$4,499</td>
<td>$7,999</td>
<td>$5,499</td>
</tr>
<tr>
<td>75”</td>
<td></td>
<td>$8,999</td>
<td></td>
</tr>
<tr>
<td>77”</td>
<td></td>
<td>$19,999</td>
<td></td>
</tr>
<tr>
<td>78”</td>
<td>$8,999</td>
<td></td>
<td></td>
</tr>
<tr>
<td>88”</td>
<td>$19,999</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100”</td>
<td></td>
<td>$59,999</td>
<td></td>
</tr>
</tbody>
</table>

Source: IHS Collection from each US sites

© 2016 IHS
Premium Market

65”+ 4K HDR TV is ...
LCD TV, 4K growth is expected to skyrocket, but price is falling fast as a common feature, so premium is looking for a chance with 4K HDR w/WCG over 65”+
OLED TV, new players will surely help enrich OLED TV line-up as well as product enhancement in 2017.
Given 65”+ market, LCD 4K HDR WCG (incl. Quantum Dot) TV and OLED 4K HDR TV will grow to 2020 by taking shares of SDR or HDR Compatible 4K LCD TV.
Thank You

Ken Park, Principal Analyst, IHS Markit Technology
Ken.Park@ihsmarkit.com